

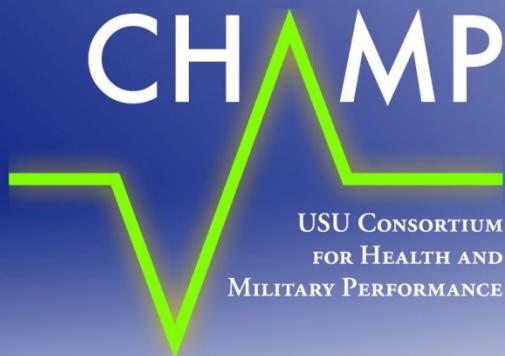
CHAMP

USU CONSORTIUM
FOR HEALTH AND
MILITARY PERFORMANCE



Fueling the Human Weapon

Deuster/Kemmer/Tubbs/Zeno



Overview



- **Energy-providing fuels**
- **CHO as a fundamental fuel**
- **Different types of fat**
- **Protein and requirements**
- **Alcohol as energy**
- **Portion control**



Energy- Providing Fuels



- **One gram of...**
 - Carbohydrate (CHO) = 4 kcal**
 - Fat = 9 kcal**
 - Protein = 4 kcal**
 - Alcohol = 7 kcal**





CHO: Fuel for Energy



- **Vital source of energy**
 - Two types: simple and complex
- **Complex CHO**
 - rice, fruits, seeds, potatoes, pasta, peas, beans, and vegetables
 - should not be restricted
- **Limit simple sugars**
 - table sugar, corn sweeteners, high-fructose corn syrup, honey, fruit sugars, brown sugar





Fats: Fuels for Energy



- **Fat is vital to life and should be consumed in moderation**
- **Mono- and polyunsaturated fats are preferred**
 - **Mono: olive, peanut, cashews, almonds**
 - **Poly: safflower, sesame, soy, corn and sunflowers, fish**

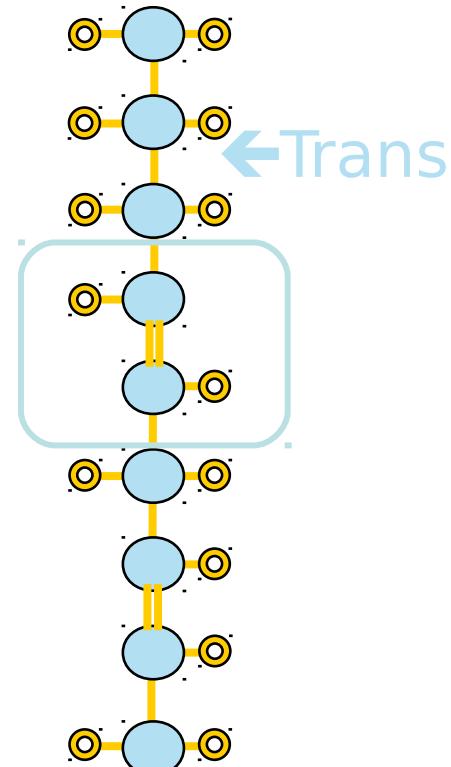


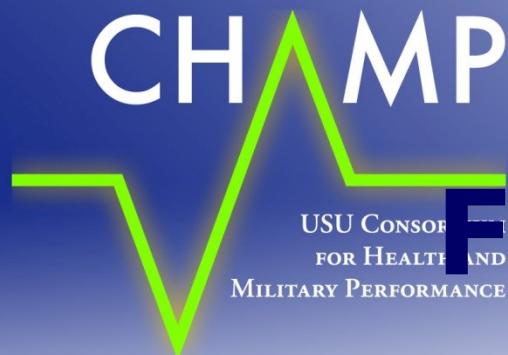


Trans Fats Are Deadly!



- **Trans Fats or “partially hydrogenated” fats must be avoided:**
 - **Man-made by changing other fats**
 - **Found in cookies, crackers, other commercial baked goods, french fries, donuts, fried onion rings**





Protein: Fuel for Structure



- **Protein (PRO) is needed for structure and function**
- **PRO is not a main source of energy (< 10%), like CHO and Fat**
- **Protein needs are determined by age, body weight, and activity level.**
- **Excess protein is converted and stored as fat**
- **Large quantities of protein strain the liver and kidneys**



Deuster/Kemmer/Tubbs/Zeno



Grams of Protein Needed



Activity Level

**Protein
Range
(grams/pound)**

Low to Moderate

0.4 to 0.5

**Endurance
Training**

0.6 to 0.9

Strength

0.6 to 0.9



Calculating Protein Needs



- **Example:**
 - 180 lb SOF is training for mission requiring endurance and strength.

Protein needs = $0.6 \times 180 \text{ lbs} = 108 \text{ grams}$

Protein needs = $0.9 \times 180 \text{ lbs} = 162 \text{ grams}$

Protein needs range = 108 - 162 g/day.



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Calculating Protein Needs



Calculating Your Daily Protein Needs

Enter body weight



155

lbs

Enter Activity Level



Strength



Your protein needs are between

93 g

and

140 g



- **Poor source of energy**
- **Amount of alcohol consumed should be limited to appropriate amount:**
 - **Men: 2 drinks per day**
 - **Women: 1 drink per day**
- **Typically unhealthy foods are consumed with alcohol**
 - **This leads to unnecessary weight gain**
- **Prevents deep, restorative sleep**



Alcoholic Beverages	Beverage Serving Size (ounces)	Number of Servings per Beverage	Calories
Beer	12	1	150
Light beer	12	1	110
Dark beer	12	1	168
Non-alcoholic beer	12	1	70
Distilled spirits (Scotch, vodka, bourbon, gin etc.)	1.5	1	100
Dry dessert wine***	5	1	198
Sweet dessert wine***	5	1	344
Red wine***	5	1	105
White wine***	5	1	100
Sparkling white wine***	5	1	106
Amaretto sour** (Sweet and sour mix, almond amaretto liqueur, tequila, orange juice)	6	4	421
B-52** (Kahlua coffee liqueur, amaretto almond liqueur, Bailey's Irish Cream)	1.5	1	91
Bloody Mary** (Vodka, tomato juice, lemon juice, Worcestershire sauce, Tabasco sauce, lime)	4.6	1	120
Chocolate martini** (Vodka, Creme de Cacao)	2.5	1.67	188
Cosmopolitan** (Vodka, Triple Sec, Rose's lime juice, cranberry juice)	2.5	1.67	131
Daiquiri** (Light rum, limes, powdered sugar)	2.7	1	137
Gin and tonic** (Gin, tonic water, lime)	7	1.33	189
Hurricane** (Dark rum, light rum, orange juice, pineapple juice, Grenadine, 151 proof rum, cherries, pineapple and sugar)	10.4	3	384



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Be aware of portion sizes

Clenched Fist
= 8 fl oz.

Baseball
= 1 cup

Tennis Ball
= 1/2 cup

Checkbook
= 3 ounces

Ping Pong Ball
= 1 Tablespoon

Beverages

Breakfast Cereals
Soup
Green Salads
Chinese Food

Beans Tomato or
Spaghetti Sauce
Mashed Potato
Fruit Salad
Apple Sauce

Meats
Canned Fish

Peanut Butter
Cream Cheese
Mayonnaise
Sour Cream
Salad Dressing



Key Points



- **CHO are a vital fuel for:**
 - Endurance and resistance activities, competitive athletic events, mental agility, and healthy living
- **Fat is essential but should contribute fewer calories than CHO**
- **Protein in excess is converted to fat**
 - Eat in moderation
- **Alcohol is nonessential and adds “empty calories”**
- **Be aware of serving portions for snacks and meals to maintain a healthy weight**

